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labels, except those for identification, are necessary on the separate batches of material; and the series of alcohols and xylols may be used repeatedly, for while there is a continual weakening of each grade in the series, the weakening is proportional throughout the whole series, so that their relation to each other remains practically unchanged.—WINFIELD DUDGEON, *Ewing Christian College, Allahabad, India.*

THE RELATION BETWEEN THE TRANSPIRATION STREAM AND THE ABSORPTION OF SALTS

During the winter of 1908-1909 experiments were conducted at Santiago de las Vegas, Cuba, in order to determine the comparative transpiration of tobacco plants under cheesecloth shade and in the open ground. For this purpose plants were grown in galvanized iron tanks which were set into outer incasing tanks permanently sunk in the ground. Six tanks were placed among the plants of a field of tobacco grown under cheesecloth, and six were set in an adjoining tobacco field not shaded. The quantity of water transpired by the plants in the tanks was determined by daily weighings, the quantity transpired being replaced each day. At maturity the leaves, stems, and roots of each plant were harvested separately, dried, and ground. The ash was determined in water-free samples of the ground material. From the data the total ash of the plants was calculated. The condensed results of the experiment are given in the following table.

PLANTS GROWN IN THE OPEN

No. of plant	Total water-free substance produced, in grams	Total water absorbed, in cc.	Total ash in plants, in grams	Water absorbed per gram of ash
1.....	209.03	52,066	18.19	2862
3.....	168.33	42,059	16.74	2512
5.....	191.91	46,840	20.54	2280
6.....	187.97	45,418	16.74	2713
7.....	185.06	46,447	18.86	2463
9.....	188.20	45,234	18.42	2456
Average.....	188.42	46,344	18.25	2548

PLANTS GROWN UNDER SHADE

No. of plant	Total water-free substance produced, in grams	Total water absorbed, in cc.	Total ash in plants, in grams	Water absorbed per gram of ash
10.....	211.43	42,122	21.36	1972
12.....	199.08	38,256	21.88	1748
14.....	184.67	36,448	20.15	1809
15.....	172.56	33,965	19.91	1706
16.....	186.80	33,922	21.56	1573
18.....	174.27	32,407	21.61	1500
Average.....	188.14	36,187	21.08	1718

From this table it appears that the total dry substance produced by the plants was about equal in the two sets.

The plants grown in the open absorbed about 28 per cent more water than those grown under shade. The plants which absorbed and transpired the greater quantity of water contained both the smaller percentage and the smaller absolute quantity of ash.

It appears, therefore, that the absorption of salts by roots is independent of the absorption of water, and that the transpiration stream does not exert an accelerating effect on the entrance of salts.—HEINRICH HASSELBRING, *Bureau of Plant Industry, Washington, D.C.*